

Executive Summary

For the postwar period, the US economy has had a remarkably diverse growth experience with 10-year average growth rates as low as 2.1% and as high as 4.8% (for an overall average rate of about 3.3 %). These low frequency movements in income and productivity are of first order significance for welfare and therefore represent a legitimate concern of all economic observers and decision makers (cf. the productivity slowdown controversy in the 1980's). Moreover, similar variations in *expected* average growth for the next 10 year are likely to have a significant impact on optimal behavior. The first innovation of this paper consists of taking into account the possibility of infrequent changes in the growth rate of labor productivity with the objective of understanding their implications for business cycle characteristics.

The debate about future economic growth and the reality of productivity slowdowns (or accelerations) underlines the difficulty in pinning down rational expectations of future low frequency events. In that spirit, it is not clear that the 2 - 5 % interval mentioned above comprises the only range of relevant growth rates deemed possible by US decision makers for any *future* ten-year period. Indeed, it is arguable that the usable sample of observations on the growth rate of a modern economy is too small for rational expectations about future economic growth rates to be solidly anchored. In line with these remarks, the second objective of this paper is to analyze the impact of pure expectational changes concerning the future growth path of the economy on the general characteristics of the business cycle.

In our view, it is legitimate to relate such potential instability in income growth expectations with the observed variations of consumer confidence indexes, long used as leading indicators of the business cycle. Current business cycle theory has little to say about

why these indexes are so widely watched and why they have predictive power. In current business cycle models, the behavior of the consumer fully conforms to the permanent income hypothesis and nothing allows for autonomous changes in consumers' perception of their permanent income. Significantly perhaps, permanent income seems to fluctuate too little in these models as evidenced by the excess consumption smoothness they display. In the present paper, we ask whether observed consumption volatility could be a result, and a sign, of expectational instability about future rates of economic growth.

Being even more specific, we are struck by converging diagnoses of the 1990-91 US recession and the more recent European recessions, diagnoses which seem to have no counterpart in current business cycle models. As to the former, Blanchard (1993) asserts: "By far, the main proximate cause of the recession was a "consumption shock", a decrease in consumption in relation to its normal determinants. ... The issue left unanswered is whether this "consumption shock" was due to animal spirits/taste shocks, or simply to anticipations of the slow growth to come." Hall (1993) partly disagrees: "Although a sharp spontaneous contraction of consumption was not part of the story of the [1990-91 U.S.] recession, changes in consumption not associated with any changes in disposable income may be important part of a bigger story about the late 1980's and early 1990's." Similarly, commenting on the current Swiss recession, Lambelet (1996) argues: "The conclusion therefore seems quite clear: to all appearances, the collapse in consumer confidence which took place in late 1990, and which still holds sway today, was largely an autonomous development, in the sense that, by all available evidence, it does not seem to reflect anything that happened in the real economy. This is confirmed by [our test] which shows that Granger-causality runs from consumer confidence to consumption expenditures, rather than the other way around." Again, these elements of diagnoses directly relate to changes in consumer confidence and it is interesting

to check whether they receive support from a neo-classical business cycle model with changing growth expectations.

To summarize, this paper builds a traditional business cycle model with positive, exogenously determined and potentially varying growth rates of labor productivity. In addition, we allow economic agents to entertain the possibility - with a time-varying probability - of future economic growth paths significantly different from those observed in the data. In particular a spell of abnormally low growth is part of the *perceived* possible set of events. We claim that such expectations cannot be ruled out in that they are not falsifiable by the data.

In this context, we phrase the five questions below and propose the following answers:

- Question 1: To what extent does an economy subject to regular variations in labor productivity growth differ from one where labor productivity is constant? and
- Question 2: What is the impact on major macro indicators of a one-time change in labor productivity growth?
- Answer: We find that such changes in the growth regime have substantial, somewhat counterintuitive, consequences. Thus, following a productivity slowdown, aggregate investment and working hours are seen to increase substantially leading to a temporary acceleration of output growth despite the fall in consumption. Symmetrical effects would follow an acceleration of productivity growth. The regular occurrence of such regime shifts, however, does not appear to be contradicted by the observed patterns of aggregate variations. In other words, the capacity of the thus enriched business cycle model to replicate the main business cycle facts remains essentially intact.
- Question 3: What are the business cycle implications of autonomous (non-falsifiable) changes in growth expectations?

- Answer: we find that macroeconomic variations induced by agent's changing expectations of their economy's growth rate, combined and possibly correlated with standard technology shocks, lead to business cycle fluctuations closely similar to the major stylized facts
- Question 4: What is the potential of such expectation changes for explaining the volatility of the consumption to output ratio?
- Answer: we find, in general, that the consumption series in economies with autonomous expectations changes better resembles its empirical counterpart. Our results also suggest, however, that the nature of growth expectations induced variations is quite sensitive to the specific content given to the notion of pessimistic growth expectations and, in some respects, fundamentally different from that induced by standard level shocks. In particular, growth and level shocks work in opposite directions vis-à-vis the economy's aggregate investment function and labor supply decisions, with the consequence that the combination of expectation instability with standard technology shocks tends to weaken, sometimes substantially, the model's propagation mechanism. Moreover, while changes in consumer confidence systematically increase the volatility of the consumption series, their impact frequently weakens or disappears after H-P filtering indicating the effect does not always materialize at business cycle frequencies.
- Question 5: Can autonomous changes in growth expectations help us understand recent business cycle episodes?
- Answer: Our model context does not provide support to those who view autonomous shifts in consumer confidence or consumers' animal spirits as the main culprit for recent recession episodes in the US and in Europe. This is because, in a consistent general equilibrium framework such as ours, changes in consumers' moods also unleash reactions on the labor supply and investment fronts, which are not compatible with a slowdown in

economic activity. While this conclusion is model specific, it challenges the proponents of this view to propose an alternative, consistent, model context in which it can, in turn, be supported.